



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

09/684,407

10/06/2000

Tommy C. Poon

MH-5060

2385

7590

12/29/2004

Patent Department
Mitsubishi Electric Research Laboratories, Inc.
201 Broadway
Cambridge, MA 02139

EXAMINER

WAHBA, ANDREW W

ART UNIT

PAPER NUMBER

2661

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|-----------------------------|--|
| Office Action Summary | Application No. 09/684,407 | Applicant(s) POON ET AL. | |
| | Examiner Andrew W Wahba | Art Unit 2661 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12, 14-21, 24-26, 29 and 31-43 is/are rejected.
- 7) ☒ Claim(s) 11, 13, 22-23, 27, 28 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.



Attachment(s)

- | | | |
|---|-------------------------|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | PHIRIN SAM | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | PRIMARY EXAMINER | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-43 have been considered but are moot in view of the new ground(s) of rejection; therefore, the finality of the previous action is withdrawn.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 7, the applicant claims "a warning message when the mobile node communicates information with the base station via the network link and with the minor node via the local link" (lines 4 and 5). The warning message claimed by applicant may indicate communication with either the network link or the local link.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 7, 16, 17, 18, 21, 25, 29, 31, 32, 33 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al (5,898,679).

With specific regard to independent claims 1 and 33, Brederveld et al discloses a wireless relay system. The mobile station MS 121 is the destination end-station. MS 120 is a source end-station (applicant's second mobile node) and transmits a message intended for MS 121. In the event that MS 120 and MS 121 are out of range (to optimize a quality of service), MS 122 acts as a relay (applicant's first mobile node) (column 5, lines 31-37). While the pattern of both direct and indirect communication is the same in both the Brederveld et al reference and the pending application, the difference is that the destination end-station in the reference is a mobile station, whereas the destination end-station in the pending application is a base station. The Office notes that a mobile station, however, may remain stationary. A person of ordinary skill in the art would have been motivated to communicate with a stationary communication node, such as a base station, to communicate indirectly with the wired portion of the network. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to communicate with an end destination node that is a base station as specified in claims 1 and 33.

With regard to claim 7, the office takes official notice that a display indicating the mode of operation (communicates information with ... network link / local link) is well known in the art. A person of ordinary skill in the art would have been motivated to include a display so as to notify the user of the mode of operation. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to obtain the invention as specified in claim 7.

With regard to claim 16, Brederveld et al discloses a wireless relay system. The mobile station MS 121 is the destination end-station. MS 120 is a source end-station (applicant's second mobile node) and transmits a message intended for MS 121. In the event that MS 120 and MS 121 are out of range (to optimize a quality of service), MS 122 acts as a relay (applicant's first mobile node) (column 5, lines 31-37). Accordingly, the link between MS 120 and MS 122 reads on applicant's local link and the link between MS 122 and MS 121 reads MS 121 reads on applicants network link. Sufficient bandwidth must be available in each of these links to establish a communication path.

With specific regard to claim 17, the configuration of the network changes depending on the pattern of communication. MS 120 is a source end-station (applicant's second mobile node) and transmits a message intended for MS 121. In the event that MS 120 and MS 121 are out of range, MS 122 acts as a relay (applicant's first mobile node) (column 5, lines 31-37). Alternatively, either MS 120 or MS 121 may act as a relay between the remaining stations.

With regard to claim 18, MS 122 determines whether a relay is required (column 5, lines 38-40). This corresponds to the applicant's quality and mobility characteristics to monitor the network link.

With regard to claim 21, a plurality of mobile stations is present as shown in Figure 1. This corresponds to the applicant's plurality of major nodes.

With regard to claim 25, Brederveld et al discloses a source end-station transmitting a multicast message (multicast mode) (column 6, lines 56-60).

With regard to claim 29 and 31, Brederveld et al discloses a wireless relay system. The mobile station MS 121 is the destination end-station. MS 120 is a source end-station (applicant's second mobile node) and transmits a message intended for MS 121. In the event that MS 120 and MS 121 are out of range (to optimize a quality of service), MS 122 acts as a relay (applicant's first mobile node) (column 5, lines 31-37). Accordingly, the link between MS 120 and MS 122 reads on applicant's local link and the link between MS 122 and MS 121 reads MS 121 reads on applicants network link.

With regard to claim 32, Brederveld et al further discloses a BLEEP signal after the reception of a message (column 5, lines 48-51). This corresponds to the applicant's end of transmission signal.

With regard to claim 43, the mobile station may be a cellular phone, computer, or any other mobile device.

6. Claims 2, 3, 5, 6, 8 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al in view of Jou et al (6,480,472).

With respect to claims 2, 3 and 34, Brederveld et al further discloses that the destination end-station verify the address information in the header set (Brederveld et al, column 6, lines 63-65). This corresponds to the applicant's header detector. Brederveld et al, however, does not disclose specific details concerning the composition of the mobile station. Jou et al discloses a remote station comprised of a receiver 204 that corresponds to the applicant's receiver, a decoder 218 that corresponds to the applicant's decoder, message generator 229 that corresponds to the applicant's message processor, and transmitter that corresponds to the applicant's transmitter (Jou

et al, Figure 3). A person of ordinary skill in the art would have been motivated to employ a mobile station such as that described by Jou et al to provide bidirectional communication of both voice and other data. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to employ a mobile station as described by Jou et al.

With specific regard to claim 5, mobiles both transmit and receive. This corresponds to the applicant's communication in standby mode and receiving in active mode.

With regard to claim 6, the mobile station may be a cellular phone, computer, or any other mobile device.

With specific regard to claim 8, Brederveld et al further discloses that the destination end-station verifies the address information in the header set (column 6, lines 63-65). This corresponds to the applicant's header.

7. Claims 4, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al in view of Jou et al in further view of view of Miyake (5,903,618).

With regard to claims 4, 19 and 20, neither Brederveld et al nor Jou et al disclose a GPS receiver. Miyake et al discloses that the both terminals and base stations detect their positions via GPS (Miyake et al, column 10, lines 21-29). This corresponds to the applicant's nodes that comprise GPS receivers. Thus, it would have been obvious to one of ordinary skill in the art to equip the mobiles with GPS so as to locate them within a cell.

8. Claims 35, 36, 38, 39, 40, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al in view of Jou et al.

With respect to claim 35, Brederveld et al discloses a wireless relay system in which mobile stations may communicate either directly or through a mobile relay (Brederveld et al, column 5, lines 31-37). This corresponds to the applicant's communication of a remote station to another remote station. Brederveld et al further discloses that the destination end-station verify the address information in the header set (Brederveld et al, column 6, lines 63-65). This corresponds to the applicant's header detector. Brederveld et al, however, does not disclose the specific components that comprise the mobile stations. Jou et al discloses a remote station comprised of an antenna 200 that corresponds to the applicant's antenna, a receiver 204 that corresponds to the applicant's receiver, a decoder 218 that corresponds to the applicant's decoder, message generator 229 that corresponds to the applicant's message processor, encoder 228 that corresponds to the applicant's encoder, and transmitter that corresponds to the applicant's transmitter (Jou et al, Figure 3). A person of ordinary skill in the art would have been motivated to employ a mobile station such as that described by Jou et al to provide bidirectional communication of both voice and other data. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to employ a remote station as described by Jou et al to communicate with a second remote station as described by Brederveld et al.

With regard to claim 36, a plurality of mobile stations is present as shown in Brederveld et al Figure 1. This corresponds to the applicant's plurality of mobile nodes.

With regard to claim 38, mobiles presented by either Jou et al or Brederveld both transmit and receive. This corresponds to the applicant's communication in standby mode and receiving in active mode.

With regard to claim 39, a header (Brederveld et al, column 6, lines 63-65) typically includes the destination address. This corresponds to the applicant's header that identifies the other mobile node.

With regard to claim 40, the office takes official notice that a display indicating the mode of operation (communicates information with ... network link / local link) is well known in the art. A person of ordinary skill in the art would have been motivated to include a display so as to notify the user of the mode of operation. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to obtain the invention as specified in claim 40.

With regard to claim 41, MS 122 determines whether a relay is required (Brederveld et al, column 5, lines 38-40). This corresponds to the applicant's quality and mobility characteristics to monitor the network link.

With regard to claims 42, the mobile station may be a cellular phone, computer, or any other mobile device.

9. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al in view of Jou et al in further view of Miyake.

Neither Brederveld et al nor Jou et al disclose a GPS receiver. Miyake et al discloses that the both terminals and base stations detect their positions via GPS (Miyake et al, column 10, lines 21-29). This corresponds to the applicant's nodes that

comprise GPS receivers. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ GPS receivers to locate mobiles within a cell.

10. Claims 9, 10, 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al (5,898,679) in view of Odenwalder et al (6,298,051).

With regard to claims 9 and 10, Brederveld et al does not disclose wherein the header includes a code word and control information and wherein the code word is a Walsh code.

Odenwalder et al discloses an IS-95 control channel 100. It is inherent that the channels disclosed by Odenwalder et al comprise a data frame because a frame is made up of time slots, each of which contain one or a plurality of channels. The IS-95 control channel 100 (control information) and a Walsh code generator 102 (code word / Walsh code word) are multiplied by multiplier 104 as illustrated by Fig 3 (column 4, lines 12-16).

A person of ordinary skill in the art would have been motivated to employ Odenwalder et al in Brederveld et al at the time the so as to insure that orthogonal channels do not interfere with one another when transmitted via the same path (column 3, lines 63-65). At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to obtain the invention as specified in claims 9 and 10.

With regard to claim 12, the IS-95 control channel 100 (control information) and a Walsh code generator 102 are multiplied by multiplier 104 as illustrated by Fig 3

(column 4, lines 12-16). It is inherent that a frame has a destination address (destination code word) to identify the recipient of the frame.

With regard to claim 14, the IS-95 control channel 100 (control information) and a Walsh code generator 102 are multiplied by multiplier 104 as illustrated by Fig 3 (column 4, lines 12-16). It is inherent that a frame has a source address (receive code word) to identify the sender of the frame.

With regard to claim 15, the IS-95 control channel 100 (control information) and a Walsh code generator 102 are multiplied by multiplier 104 as illustrated by Fig 3 (column 4, lines 12-16). It is inherent that a frame has a destination address (forward code word) and source address (receive code word) to identify the sender and recipient of the frame.

With regard to claim 26, Odenwalder et al discloses that data channels D_I and D_Q are multiplied (encrypted) with spreading codes PN_I and PN_Q (pseudo random number sequence) (column 6, lines 27-34).

Allowable Subject Matter

11. Claim 11, 13, 22-23, 27, 28 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew W Wahba whose telephone number is (571) 272-3081. The examiner can normally be reached on M-F 8:30-5:30.

Art Unit: 2661

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Respectfully Submitted,

Andrew Wahba *AW*
Patent Examiner
December 16, 2004


PHIRIN SAM
PRIMARY EXAMINER